

IN THE SPECIFICATION:

Please replace the paragraph at page 1 at lines 15-20 ([3] of the published application) with the following:

Demineralized freeze-dried bone allograft is widely used in the repair of skeletal defects and periodontal disease. It is known that the implantation of acid demineralized bone in the form of a powder in extrasketal sites may stimulate new bone formation. Various groups including Syftestad and Urist, 1982; Urist *et al.*, 1967; Urist and Strates, 1970; Urist and Strates, 1971; and Urist *et al.*, 1983 have suggested that a noncollagenous protein or proteins present in demineralized bone has the ability to induce new bone formation when present within the implanted bone matrix.

Please replace the paragraph at page 8 at line 10 – page 9 line 2 ([28] of the published application) with the following:

Ion Exchange Media. By the term "ion exchange media" is intended any media capable of removing calcium and/or phosphate from a demineralizing acid solution, including, for example, 8% cross-linked DOWEX 50WX8 50-100 mesh, which is a cation exchange resin. Anion and cation resins are available with mesh sizes including 50-100, 100-200, and 200-400. There are three resin types, strong acid cation exchange resins designated as 50W, Type I strong base anion exchange resins designated as 1, and Type II strong base anion resins designated as 2. DOWEX resins are fine mesh resins (Dow Chemical Co., Midland, Mich.) and microporous copolymers of styrene and divinylbenzene (DVB). Cross-linkage is measured by percent DVB content, and includes 2, 4, and 8. As one skilled in the art would appreciate, this enables selection of optimum levels of permeability, water retention capacity, and total capacity. Suitable ion exchange media include mixtures of cation and anion resins and include, for example, one-third DOWEX 50WX8 50-100 mesh, one-third DOWEX 1 50-100 mesh, and one-third DOWEX 2 50-100 mesh; one-half DOWEX 1 50-100 mesh, C1 form and one-half DOWEX 50WX8 50-100 mesh, H form; and 200-400 mesh at 1 liter per minute. However, it is appreciated that one skilled in the art would be capable of selecting a suitable ion exchange resin to process bone.

Please replace the paragraph at page 11 at line 11 – page 12 at line 3 ([36] of the published application) with the following:

In accordance with the present invention, the demineralizing acid solution may be pulsed into the ion exchange column containing the bone or continually pumped through an ion exchange column which removes both the cations (calcium) and anions (phosphate). In the event of the pulsed exchange, calcium is removed and the acid is drained. In the event of the continuous exchange, calcium is removed and the acid is continuously regenerated. Suitable ion exchange media includes an 8% cross-linked DOWEX 50WX8 50-100 mesh, which will remove any calcium ions from dilute acid. The acid in the demineralizing acid solution competes with the calcium for the binding sites. While any concentration suitable to demineralize bone may be used, it has been found that the lower the concentration of acid, the greater the efficacy of calcium removal. Phosphate anion removal requires an anion exchange resin including, for example, DOWEX 1 and DOWEX 2. These ion exchange media will maintain the pH of the bone-acid reaction mixture thus eliminating the necessity of stopping the demineralization process in order to remove the solubilized calcium from the bone tissue. The ion exchange columns can be inactivated, for example, by a flow valve when it is time to wash the demineralized bone at the end of the demineralization process. The ion exchange columns can be reused, re-sterilized and through the use of "selectivity charts" can be optimized for efficacy.